SECRETARY'S ENVIRONMENTAL ASSESSMENT REPORT
FOR A COASTAL ZONE ACT PERMIT APPLICATION

Re: Praxair, Inc.

June 2015

Introduction

As required by the "Regulations Governing Delaware's Coastal Zone" (Section 8.3.4) dated May 11, 1999, and amended October 1, 2001, the Secretary is required to make an environmental assessment of the impact(s) of the project on the Coastal Zone of Delaware. This is done by evaluating the project's likely impact on the statutory and regulatory criteria and making a preliminary determination of the sufficiency of the Offset Proposal. The following is such an environmental assessment of the proposed project described in an application for a Coastal Zone Act (CZA) Permit, received from Praxair, Inc. ("Praxair").

The fact that DNREC considers an application to be preliminarily, administratively complete does not constitute the Department's position as to whether the application should be approved or denied. That decision will not be made until after the public hearing. The purpose of the Secretary's written assessment is to assist the applicant and the public to focus on issues presented in the application. It constitutes an administrative determination that the application is sufficient to proceed to a public hearing. In addition, should the Department eventually issue the CZA Permit, it does not automatically guarantee the applicant will receive other required permits.

The Proposed Project

Carbon Dioxide and Nitrogen Units will be installed within the Delaware City Refinery ("Refinery"). The Praxair Carbon Dioxide Purification and Liquefaction Unit (CO_2 Unit) will process a CO_2-rich byproduct gas feed (approximately 43,100 pounds per hour) containing mostly CO_2 (>85%) and water (~5 to 15%) from the Refinery. The CO_2 will be purified and liquefied to generate beverage-grade liquid carbon dioxide for use outside of the Refinery. The CO_2 Unit is replacing an existing similar unit currently operated by Air Liquide. The Nitrogen Unit will separate nitrogen gas from approximately 28,000 pounds per hour ambient air utilizing a standard cryogenic distillation process. Nitrogen is currently shipped to the refinery in cryogenic trailers and is stored on site. Nitrogen is used to generate inert atmospheres within tanks, process vessels and other confined spaces as a safety measure and to minimize the emissions of volatile compounds during refining processes. The proposed nitrogen unit will replace the need for shipments of nitrogen to the refinery.

Environmental Assessment

Anticipated air emissions from Praxair's CO_2 Unit are compared to the permitted air emissions for the existing Air Liquide CO_2 unit in the following table:

	Byproduct Gas Ton/yr. In	Existing Air Liquide CO_2 Unit permit, ton/yr.	Praxair Ton/yr.	Amount Decrease, ton/yr.
Raw Gas	---	192,194	179,398	12,796
Hydrogen	95.60	530.81	95.60	435
Carbon Monoxide	20.08	107.35	20.08	87
Non-VOC*	76.48	87.82	76.48	11
HAPs**	4.95	4.52	2.48	2
VOC***	5.23	6.79	2.63	4
Hydrogen sulfide	0.24	0.079	0.00	0.079

* Non VOC – mostly methane and ethane
** Hazardous Air Pollutants – mostly methanol with trace benzene, toluene and ethyl benzene
*** VOC mostly methanol/ethanol with trace benzene, toluene and ethyl benzene

The CO_2 Unit will require a water source of approximately 55 gallons per minute (gpm), which will be provided by United Water Delaware. United Water Delaware obtains water from Red Clay Creek, White Clay Creek, or Christina River at locations outside of Delaware's Coastal Zone. The CO_2 Unit will generate a peak wastewater flow of approximately 24 gpm that will be sent to the Refinery's existing wastewater treatment system. The power consumption of the CO_2 Unit will average approximately 2.69 megawatts per hour, which will be supplied by Delmarva Power's distribution system. The CO_2 Unit will use two activated carbon filters. The dryers include a primary and a secondary dryer bed; the primary dryer bed uses an aluminum oxide absorbent and the secondary dryer bed uses a zeolite absorbent. Spent activated carbon media and spent absorbents will be transported to a permitted landfill. No other environmental impacts are anticipated.

With respect to air emissions, the Nitrogen Unit will utilize a standard cryogenic distillation process. This process is considered to have *de minimis* environmental impacts as supported by Title 7, Delaware Administrative Code, Natural Resources and Environmental Control, 1100 Air Quality Management Section, 1102 Permits, which exempts equipment used to liquefy or separate oxygen, nitrogen or the rare gases from air permitting requirements. Discharges from the Nitrogen Unit to the environment are limited to denitrified and dehumidified air, and

condensate derived from the dehumidification process. Condensate generation from the Nitrogen Unit is anticipated to average approximately 53 lbs./hr. (442 gallons per hour), but is directly dependent on the moisture content of the air at the time of processing. Condensate will be discharged to the Refinery's wastewater treatment plant. The power consumption of the Nitrogen Unit will average approximately 1.104 megawatts per hour, which will be supplied by Delmarva Power's distribution system. No other environmental impacts are anticipated.

During project construction, there will be a peak of 50 and an average of 30 workers; the majority will be local. Post-construction, there will be 4 full-time plant operators (one superintendent and three technicians) and 6-8 truck drivers hired for daily operations.

Both the CO_2 and Nitrogen Units will be constructed within the footprint of the Refinery, an existing grandfathered non-conforming use, as shown in the application.

There will be no new supporting facilities and services required to support the proposed project.

Effects on neighboring uses will be minimal.

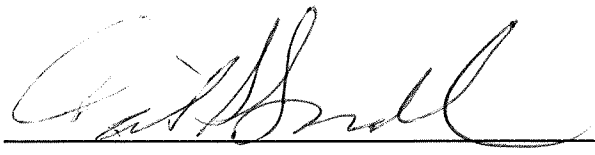
The proposed facility and operation is consistent with the New Castle County Comprehensive Development Plan.

Offset Proposal

The offset for the Carbon Dioxide Purification and Liquefaction Unit is the replacement of the existing Air Liquide CO_2 Unit with Praxair's Unit, which has a demonstrable decrease in air emissions. The proposed Nitrogen Unit has no direct emissions and requires no offset.

Sufficiency Statement and Conclusion

By replacing the existing Air Liquide CO_2 Unit with newer, more efficient equipment, and by producing Nitrogen from ambient air on-site, thereby reducing shipments of nitrogen to the refinery by an average of 100 trucks per month, Praxair's proposed project will benefit the Coastal Zone. This application for a CZA Permit, including supplemental information, has been reviewed by the Department to determine its completeness. After a thorough review of the company's application and file, the Department considers this application to be administratively complete and sufficient for proceeding to public hearing.

Approved: 

David S. Small
Secretary

Date: June 11, 2015